

Patent Claims

1. Device for adjusting the angle of a sighting unit (1) to a target, in particular for a geodetic measuring instrument, comprising
- a reference base (2),
 - at least one bearing (3) for mounting the sighting unit (1) so as to be rotatable relative to the reference base (2) about an axis (4),
 - a gear for adjusting an angle of rotation between the sighting unit (1) and the reference base (2) about the axis (4) and
 - a clutch unit by means of which a torque flux about the axis (4) can be limited or can be interrupted,
 - the gear and the clutch unit being connected in series in the torque flux between the sighting unit (1) and the reference base (2) and
 - the torque flux around the axis (4) between the sighting unit (1) and the reference base (2) occurring directly or indirectly substantially via the gear and the clutch unit, unless the torque flux is interrupted by the clutch unit,
- characterized in that
- the clutch unit has at least one electromagnet (5) for generating a magnetic field and
 - the torque flux around the axis (4) can be limited or can be interrupted by the action or inaction of the magnetic field.
2. Device according to Claim 1, characterized in that the electromagnet (5) is in the form of a

permanent electromagnet comprising at least one permanent magnet and at least one excitation winding, which excitation winding reduces or neutralizes a permanent magnetic field of the permanent magnet, at least in part, when a voltage is applied.

3. Device according to Claim 1 or 2, characterized in that the electromagnet (5) is substantially annular and is arranged around the axis (4).

4. Device according to Claim 1 or 2, characterized in that the electromagnet (5) is in the form of at least two individual electromagnets which are arranged substantially in a circle, the midpoint of which lies on the axis (4) and through the circular area of which the axis (4) passes perpendicularly.

5. Device according to any of Claims 1 to 4, characterized in that the clutch unit has at least two parts forming friction surfaces - in particular disc-like parts arranged around the axis (4) - for torque transmission by friction which can be caused by pressing against one another.

6. Device according to Claim 5, characterized in that the clutch unit comprises

- a ferromagnetic brake disc (6) which surrounds the axis (4) and on which the magnetic field can act, having a brake disc surface (7), and
- a - in particular disc-like, flat - spring

element (8) which is connected firstly to the gear and secondly to the brake disc (6), and the parts forming friction surfaces are at least in the form of

- 5 - the ferromagnetic brake disc (6) having the brake disc surface (7) and in the form of
- the electromagnet (5) having an electromagnet surface (9),

10 the brake disc (6) - in particular as a result of the action of the magnetic field - being movable against the action of a spring force of the spring element (8), in the direction of the electromagnet (5) until the brake disc surface (7) presses against the electromagnet surface (9).

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7. Device according to Claim 6, characterized in that
- the gear comprises a worm (10) and a worm wheel (11), the midpoint of which lies on the axis (4), and

20 - the brake disc (6) of the clutch unit is directly connected to the worm wheel (11) of the gear via the spring element (8) of the clutch unit.

25 8. Device according to Claim 5, characterized in that one of the parts of the coupling unit which form friction surfaces and a toothed wheel part of the gear are formed as a common part.

30 9. Device according to Claim 8, characterized in that

 - the gear comprises a worm (10) and a ferromagnetic worm wheel (12), the midpoint of which lies on the axis (4) and on which the

magnetic field can act, having a worm wheel surface (13),

- the common part of the clutch unit and of the gear is formed by the ferromagnetic worm wheel (12), and

- the parts forming friction surfaces are at least in the form of

- the ferromagnetic worm wheel (12) having the worm wheel surface (13) and in the form of

- the electromagnet (5) having an electromagnet surface (9),

the electromagnet (5) - in particular as a result of the action of the magnetic field and in particular against the action of a spring force caused by a spring element (2) - being movable in the direction of the ferromagnetic worm wheel (12) until the electromagnet surface (9) and the worm wheel surface (13) press against one another.

10. Device according to any of Claims 1 to 9, characterized in that the gear for adjusting the angle of rotation has an unlimited adjustment range.